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FORMULATION OF CONDITIONS FOR THE SELECTION OF MEMBERS

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As stated on page 23 of the March number of the *QUARTERLY*, the Illinois Chapter of the Society of the Sigma Xi recently adopted certain conditions for the election of new members, for the purpose of stating as clearly and definitely as possible the present interpretation on the part of this Chapter of the general conditions for membership prescribed by the Constitution of the Society. In recent years the Board of Electors of the Illinois Chapter has experienced considerable difficulty resulting from the large number of nominations made by the various departments of the University in accord with their own interpretations of the general conditions set down in the constitution as governing the election of new members.

The rapid increase in the number of graduate students and in the facilities for investigation seemed to make it desirable to raise gradually the standards for election of members in order that the Chapter might have the best possible local influence under these changed conditions. On the other hand, the information submitted to the Board of Electors was in many cases insufficient to select wisely a comparatively small number of members from the large number of nominees. Errors made in this respect naturally tended to diminish the interest in the Chapter on the part of some of those whose cordial coöperation was most desirable.

To obviate these difficulties as far as possible the Board of Electors formulated conditions to which reference has been made. All members of the Chapter received copies of these conditions at the time nominations were due and when the Board of Electors met to consider the election of members, the number of nominees placed before it was less than half as large as it had been in previous years. A very gratifying feature of the situation was the fact that the nominees seemed to have been selected with such great care that only a small number of them failed to be elected. Naturally there was a much better general feeling after the election on the part of those who had made the nominations than had sometimes existed in late years.

One reason the master's and doctor's theses were not regarded as sufficient to fulfill the requirements of publication on the part of those who are to be elected on the conditions prescribed for new

faculty members, is that the primary object of the Society of the Sigma Xi seems to be to encourage those actively engaged in research. It was thought that election to this body should imply the promise of greater accomplishments on the part of those who have already shown noteworthy achievements in original investigation as well as on the part of those elected as students. "Companions in Zealous Research" seems to imply more than accomplishments.

Scientific zeal can evidently not be gauged by the quantity of published material, but the zealous scientific investigator who is blessed with ability may be expected to make occasional discoveries which are very useful to others working along similar lines. The publication of such discoveries is clearly a service to science and hence should be encouraged. The insistence on independent publication on the part of those who may naturally be expected to stand out most clearly as the embodiment of the ideals of the Society seems therefore desirable.

On actual trial the given conditions prescribed by the Illinois Chapter for nominees who do not belong to the student body did not exhibit any objectionable features. On the other hand, the conditions relating to graduate students were not found entirely satisfactory in view of the fact that several of these students, who appeared to be otherwise highly qualified for membership, did not have their manuscript in suitable form to be placed before the Board of Electors at the time nominations were due. Whether this feature of the conditions will be modified by the Chapter, or whether the objection will be obviated by holding the future elections at a later date, will probably be decided before the next annual election.

One reason why it seemed desirable that the graduate student should have actually completed at least one good manuscript before he should be considered for election to the Society is that the merit of a contribution can generally be more completely determined after it has been put into good form. Moreover, the student's success as a scientist depends largely upon his ability to present his results clearly and to exhibit their bearing on other work. The growing tendency towards direct collaboration in science naturally increases the relative importance of this ability.

Notwithstanding the danger involved in the election of undergraduates to membership in the Society, the Illinois Chapter has

deemed it desirable to continue the practice of electing such members. It has, however, endeavored to make the conditions governing these elections sufficiently high to guard against a large per cent of bad elections. In fact, if the given conditions relating to this class of members can be strictly enforced it is likely that the per cent of misplaced confidence in this class will prove to be lower than that in either of the other two classes.

An obvious danger of stringent eligibility conditions is that they may prevent nominations on the part of the most conscientious members and thus tend to bring before the Board of Electors only a partial list of those who are most worthy of election. A representative Board of Electors will generally soon learn that the art of nominating favorably is more readily acquired by some members than by others. If the prescribed conditions are such as to bring before the Board all desirable names together with some undesirable ones the elimination is usually more nearly correct than some of the members of the Chapter would be willing to admit.

There are, however, great dangers in drastic eliminations of this type, as was noted above. The wisest course seems to be to have eligibility conditions sufficiently lenient to secure all the desirable nominees on the part of those who are the most careful and scrupulous, but not so lenient as to make very extensive eliminations necessary on the part of the Board of Electors. That some such eliminations will always be necessary seems natural if the Society is to perform its full service in the encouragement of research.

The Board of Electors of the Illinois Chapter has assumed that the interests of the Society demand that a careful study of each case be made irrespective of university degrees or official positions. For instance, graduate students who have been recommended for the Ph.D. degree in some scientific subject are not regarded as fulfilling thereby the requirements for election, and such students have not always been elected. Nor does the appointment to a full professorship in a scientific department imply that the appointee fulfills the eligibility conditions for election as a member of the faculty. In fact, it is likely that some of the best service that can be rendered by the Society for the encouragement of original investigation will result from a careful and conscientious treatment of such cases.

A great danger of very definite formal eligibility conditions for new members is that formalities are usually more readily complied

with by the weak students than by the stronger ones. The advancement of scientific knowledge is largely due to non-conformists. In particular, too much stress is apt to be placed on mere publications or the mere completion of a particular undertaking. As a strong scientific factor in our American universities the Society of the Sigma Xi can do much good by standing for the highest ideals, which are embodied in men rather than in phrases. It is the function of the Board of Electors to find these men with the aid of the local members even if the process develops some friction.

While it seems impossible to put into words the complete eligibility conditions for new members, and while strenuous efforts along this line would be more likely to hinder than to help scientific work of high order, yet the members of a chapter are entitled to know certain minimum conditions which govern the actions of its Board of Electors. The said conditions formulated by the Board of Electors of the Illinois Chapter aimed merely to convey to the members of the Chapter such minimum conditions, and they were not intended to furnish the true conditions of membership.

For the enforcement of these true conditions of membership, it is necessary to depend primarily upon men who have been in close contact with the nominees and who have observed at close range the spirit, ability, and zeal which tend to characterize him as a scientist. These characteristics can clearly be fully appreciated only by those who are themselves dominated by high scientific ideals, and hence a Board of Electors must naturally be largely governed by the names of the nominators. It is perhaps not too much to say that its study of the nominee should begin with a study of the nominators.

A very important element in the said formulated conditions for eligibility for membership is the fact that the nominators are expected to express their opinions in regard to the value and originality of publications or manuscripts submitted. The Society of the Sigma Xi can render no more needed service to the advancement of science than the encouragement of a careful distinction between publications, and this distinction can be made wisely only by those who are specialists on the matters in question. It should be especially noted that both of the nominators are expected to express their opinions on this point. These opinions in each case should be first hand in order to secure the desired information.

The exercise of great care in the election of members to our Society is the more important in view of the fact that this election is usually the first scientific honor conferred upon the student by a national organization. General confidence in the integrity and carefulness on the part of those in position to bestow great scientific honors is of the greatest significance if these honors are to wield a strong influence for good. It is evidently important that this confidence should not be shattered at the start through the lack of due precaution or of the strictest impartiality.

The keystone of good elections, especially in large institutions, is good nominations. A very important precautionary method to secure such nominations is the special departmental meeting for the consideration of possible nominees. The arrangement of all the nominees of the department in the order of merit is often very helpful to the Board of Electors. The use of such methods, especially on the part of the larger departments, is clearly much more effective than the direct considerations by the Board of Electors, based upon the statements made by the nominators who may be more or less skillful in the use of superlatives.

The service to science which the Society of the Sigma Xi aims to perform through the election to membership is clearly one beset with very great difficulties, and efforts along this line are apt to prove more harmful than helpful unless the proper care is exercised. In view of these facts a discussion of the means employed by the various Chapters to secure the best possible results along this line should be highly valuable. The present article aims to be a slight contribution in this direction.